297914   FAA-04-19017-5

DIRECTORATE IDENTIFIER: 2004-NM-144-AD

AD WORKSHEET – NO SERVICE INFORMATION – for DOMESTIC airplanes for:

☐ NPRM (notice of proposed rulemaking)
☒ IAR (immediately adopted rule)
☐ EMERGENCY
☐ NFR (no-notice final rule)

Engineer: **Jim Webre**	Backup engineer: **Guy Thiel**
Telephone: **562.627.5364**	Telephone: **562.627.5368**
Branch: **ANM-160L**	

CONCURRENCES

ROUTING SYMBOL
: 160L
INITIALS/SIGNATURE
Jw
DATE
7/15/04

ROUTING SYMBOL
100L
INITIALS/SIGNATURE
DATE
7/15/04

ROUTING SYMBOL
INITIALS/SIGNATURE
DATE
7/15/04

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1 **Applicability** (model/series/product): **All B-717, MD-10, and MD-11 Aircraft**
Estimated **number** of **airplanes** (for cost estimates): 228 U.S. ~~368~~ non-U.S. 363 per Guy Thiel 08/27

ROUTING SYMBOL
INITIALS/SIGNATURE
DATE
7/(5/04

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2 For a **fuel systems safety**-related AD, were the actions identified as part of a formal **SFAR88**-related mandatory action decision meeting (a/k/a "SFAR 88 Review" Meeting)? **n/a** If so, don't answer question **8**.

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3 Background: **Recently, an MD-11 operator reported two altitude violations of the selected Flight Control Panel (FCP) altitude during FMS PROF descents. An investigation by the aircraft manufacturer and the avionics manufacturer has determined that under certain circumstances, the aircraft may descend below the selected FCP altitude and/or the FMS-constrained altitude while the aircraft is descending in the FMS PROF mode. Since B-717 and MD-10 aircraft use the same basic FMS software as the MD-11, this condition also may occur on these models.**

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4 Unsafe condition and cause: **Under certain conditions during an FMS PROF descent, the FMS will allow the aircraft to descend below the selected FCP altitude and/or FMS-constrained altitude. An uncommanded descent below the selected level-off altitude may reduce separation from nearby air traffic or terrain, resulting in an unsafe condition. If, during an FMS PROF descent, a specifice series of events occur and the aircraft's airspeed is within the FMS overspeed detection window, the FMS will not command the autopilot/flight director to level off at the next altitude constraint.**

ROUTING SYMBOL
INITIALS/SIGNATURE

ROUTING SYMBOL

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5 **Requirements** of the AD:

Action #1: **Modify the Limitations section of the FAA Approved Airplane Flight Manual (AFM) by inserting the following limitation into the Limitations section of the AFM:**

> **Use of PROF mode for descent and/or approach operations is prohibited unless**
>
> **1. The airplane is on path and the FMA indicates THRUST | xxx | PROF, or**
>
> **2. The indicated airspeed is below Vmax for the airplane configuration by at least:**
>   **a. 10 knots at indicated altitudes below 10,000 feet, or**
>   **b. 15 knots at indicated altitudes of 10,000 feet or above, or**

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more Profile   *Honeywell*

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     1. The airplane is on path and the FMA indicates THRUST | xxx | PROF, or

     2. The indicated airspeed is below Vmax for the airplane configuration by at least:
        a. 10 knots at indicated altitudes below 10,000 feet, or
        b. 15 knots at indicated altitudes of 10,000 feet or above, or

3. Basic autoflight modes (e.g., LVL CHG, V/S, or FPA) are used to recapture the path when the PROF mode is engaged and the airplane is:
    a. Above or below the path and the FMA indicates PITCH | xxx | IDLE, or
    b. Below the path and the FMA indicates THRUST | xxx | V/S.

Compliance time (and grace period if applicable): **90 days**
Repetitive interval, if any: **None**
Does this terminate another action? **No**

Action ##: **n/a**
Compliance time (and grace period if applicable):
Repetitive interval, if any:
Does this terminate another action?

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6 Estimated **costs** (*excluding* the conditional actions):
Parts: **$0.00**, per airplane
Number of work hours: **1.0**, per airplane

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7 Is the corrective action considered **interim action**? **Yes** If so, it's interim action because ...

☒ Mfr is developing a mod; not available yet   ☐ This is an IAR; optional mod to be required later   ☐ No terminating action developed yet   ☐ Waiting for inspection results

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8 Is this AD action related to a **safety recommendation** (FAA or NTSB)? **No** What number? **n/a**

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9 Does this AD action affect the **presidential fleet** (747-200B, 757-200, DC-9, Gulfstream G-III)? **No**

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10 Mark the **cause** of the unsafe condition:

☒ Design problem   ☐ QC (is a **report** required?   )   ☐ Operational   ☐ Maintenance   ☐ Other:

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11 Should a **special flight permit** (14 CFR part 39) be allowed? **Yes** If not, it is -
☐ Prohibited
☐ Permitted with the following limitations:

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12 ☒ Appropriate **coordination** with organizations outside the FAA has been made.
☐ Appropriate **coordination** with organizations outside the FAA has not been made, because   .

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13 Provide any additional information for the tech writer here. **None**

After the worksheet is signed, send it to ANM-114 with a copy of any FAA/NTSB Safety Recommendation.

Jim Webre	July 15, 2004
Project Engineer	Date

Joe Hashemi, Acting	July 15, 2004
Branch Manager	Date

Jim Richmond	July 15, 2004
ACO Manager	Date

N/A	
MIDO (necessary for QC issues)	Date

John Lambie	July 15, 2004
AEG Representative	Date